

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P928512

Luminaire Tested: DFN2DIP-HX4F0-040D090US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928512
REPORT IS A COMBINATION OF REPORTS P900909 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

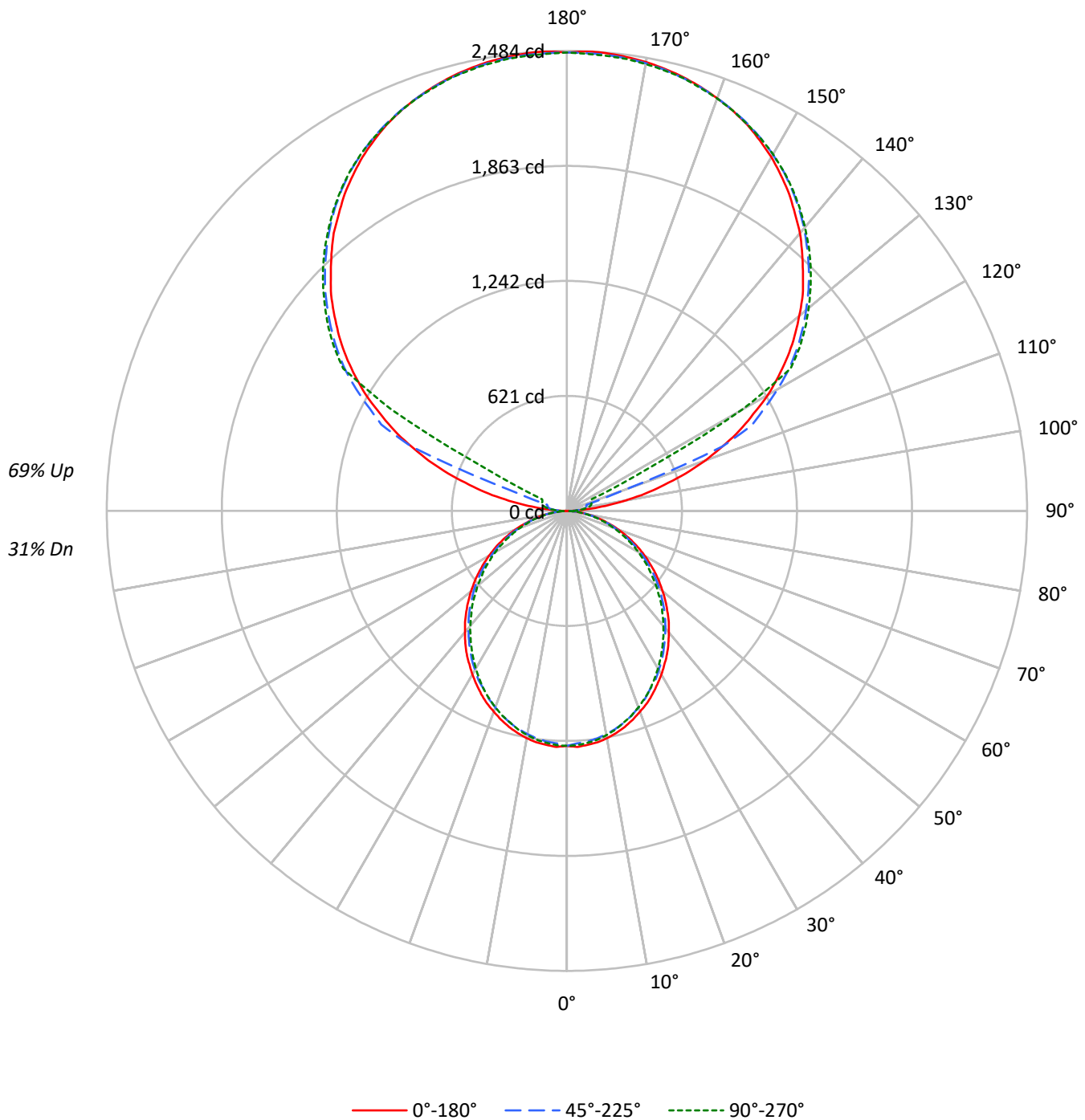
Lumens per Lamp: N/A
Luminaire Lumens: 10489.0 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	943	943	943
5°	945	930	936
10°	937	918	924
15°	923	903	904
20°	905	882	884
25°	886	857	860
30°	863	834	831
35°	841	806	799
40°	814	778	769
45°	787	751	738
50°	758	721	703
55°	727	688	670
60°	693	648	633
65°	655	606	589
70°	606	556	541
75°	539	495	498
80°	459	418	414
85°	333	285	275

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1269 cd/sqm

TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	1.1
10°-20°	335.9	3.2
20°-30°	493.7	4.7
30°-40°	573.4	5.5
40°-50°	572.7	5.5
50°-60°	499.3	4.8
60°-70°	369.1	3.5
70°-80°	208.8	2.0
80°-90°	59.5	0.6
90°-100°	81.6	0.8
100°-110°	304.3	2.9
110°-120°	807.0	7.7
120°-130°	1338.5	12.8
130°-140°	1421.8	13.6
140°-150°	1321.4	12.6
150°-160°	1062.4	10.1
160°-170°	684.6	6.5
170°-180°	235.6	2.2
0°-30°	949.0	9.0
0°-40°	1522.3	14.5
0°-60°	2594.3	24.7
0°-90°	3231.7	30.8
90°-120°	1193.0	11.4
90°-150°	5274.7	50.3
90°-180°	7257.0	69.2
0°-180°	10489.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1268	1268	1268	1268	1268	
5°	1268	1264	1250	1260	1258	120
15°	1208	1200	1184	1189	1183	340
25°	1093	1083	1062	1065	1062	503
35°	943	931	911	904	898	589
45°	767	759	740	727	722	592
55°	581	573	559	544	538	519
65°	392	384	372	361	355	387
75°	205	202	196	189	192	219
85°	50	49	48	44	43	56
90°	2	22	36	45	48	10
95°	116	57	70	79	77	138
105°	544	598	109	129	136	582
115°	1030	1060	1105	276	147	1014
125°	1456	1480	1514	1526	1532	1299
135°	1802	1831	1847	1865	1861	1392
145°	2090	2088	2119	2132	2123	1307
155°	2302	2286	2307	2318	2304	1061
165°	2425	2415	2420	2432	2420	685
175°	2481	2468	2472	2484	2466	236
180°	2476	2476	2476	2476	2476	

TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.5	1268.5	1268.5	1268.5	1268.5
2.5°	1275.9	1269.8	1256.3	1268.5	1266.2
5°	1268.5	1263.7	1250.2	1259.9	1257.6
7.5°	1259.9	1252.7	1239.2	1249.1	1246.6
10°	1246.6	1238.1	1223.5	1233.2	1229.5
12.5°	1228.2	1221.0	1206.4	1212.5	1209.9
15°	1207.5	1200.3	1184.4	1189.2	1183.2
17.5°	1181.9	1174.7	1158.8	1164.8	1158.8
20°	1153.8	1146.5	1129.5	1133.1	1128.4
22.5°	1125.8	1114.8	1098.9	1098.9	1096.5
25°	1092.8	1083.1	1062.4	1064.8	1062.4
27.5°	1056.2	1047.7	1032.0	1028.3	1022.3
30°	1019.7	1009.9	991.7	988.0	983.1
32.5°	980.7	973.4	953.9	946.5	941.6
35°	942.9	930.7	911.2	903.8	897.7
37.5°	900.2	889.2	869.6	861.1	855.0
40°	856.3	846.5	826.9	816.1	811.2
42.5°	813.6	803.8	784.4	772.0	764.8
45°	767.2	758.8	740.3	727.1	722.1
47.5°	722.1	713.5	694.1	680.6	673.4
50°	674.5	668.4	651.3	634.2	628.1
52.5°	628.1	619.6	603.8	590.4	581.8
55°	580.7	573.3	558.7	544.0	538.0
57.5°	533.0	527.0	511.0	496.4	491.5
60°	485.4	480.6	463.6	450.1	446.5
62.5°	439.1	430.6	418.4	406.2	401.3
65°	391.6	384.2	372.0	361.0	355.0
67.5°	342.8	336.6	325.8	317.2	312.3
70°	297.6	292.7	281.7	273.2	268.4
72.5°	251.3	246.4	240.3	231.8	228.1
75°	204.9	202.5	196.3	189.1	191.5
77.5°	163.4	158.5	156.1	152.4	148.8
80°	122.0	120.7	118.3	114.7	112.2
82.5°	83.0	83.0	81.8	76.9	76.9
85°	50.0	48.8	47.6	43.8	42.7
87.5°	22.0	19.6	17.1	13.4	12.1
90°	1.7	21.5	35.7	44.9	48.2
92.5°	44.9	37.7	43.0	46.6	48.2
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.5	62.8	91.3	96.7	98.5
100°	317.1	71.7	102.1	116.4	120.0
102.5°	435.2	431.8	105.7	125.3	130.8
105°	544.5	598.4	109.3	128.9	136.1
107.5°	671.7	716.4	113.0	132.5	139.8
110°	793.6	831.1	313.5	134.4	141.5

TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.2	940.3	909.9	137.8	143.4
115°	1029.9	1060.3	1105.2	275.9	146.9
117.5°	1135.6	1171.4	1202.0	945.7	476.4
120°	1253.9	1280.7	1313.0	1334.5	1092.7
122.5°	1354.1	1382.8	1418.8	1429.3	1431.3
125°	1456.2	1479.6	1513.6	1526.2	1531.5
127.5°	1549.3	1574.4	1601.5	1619.3	1621.0
130°	1637.2	1665.9	1685.5	1705.2	1703.6
132.5°	1726.7	1750.1	1769.7	1785.9	1784.2
135°	1802.0	1830.7	1846.7	1864.8	1861.2
137.5°	1880.8	1902.2	1920.3	1938.2	1932.9
140°	1957.7	1972.2	1991.8	2007.9	1999.0
142.5°	2022.4	2035.0	2058.1	2072.4	2063.5
145°	2090.5	2088.5	2119.0	2131.6	2122.6
147.5°	2149.4	2144.1	2174.5	2183.5	2176.4
150°	2206.9	2194.3	2223.0	2233.6	2224.7
152.5°	2255.1	2240.8	2267.7	2278.5	2265.9
155°	2301.7	2285.7	2307.2	2317.9	2303.6
157.5°	2339.4	2325.1	2341.3	2353.8	2339.4
160°	2371.6	2360.8	2371.6	2382.3	2369.8
162.5°	2400.2	2389.5	2398.5	2411.0	2394.9
165°	2425.3	2414.6	2420.0	2432.5	2420.0
167.5°	2445.1	2434.2	2439.7	2452.3	2436.1
170°	2461.2	2450.4	2454.0	2466.5	2450.4
172.5°	2471.9	2461.2	2464.8	2477.4	2461.2
175°	2480.8	2468.2	2471.9	2484.4	2466.5
177.5°	2484.4	2471.9	2473.8	2486.3	2470.2
180°	2475.5	2475.5	2475.5	2475.5	2475.5

TEST NUMBER: P928512

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US930-FLLONL

CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	4.97	5.68	6.07	6.78	8.30	4.53	5.25	5.64	6.35	7.87
	3H	6.62	7.25	7.73	8.36	9.90	6.14	6.78	7.26	7.89	9.43
	4H	7.20	7.80	8.32	8.91	10.46	6.72	7.33	7.85	8.44	9.98
	6H	7.59	8.15	8.72	9.26	10.82	7.11	7.67	8.25	8.78	10.34
	8H	7.69	8.22	8.83	9.35	10.90	7.21	7.74	8.35	8.87	10.42
	12H	7.73	8.24	8.87	9.36	10.93	7.25	7.76	8.39	8.88	10.45
4H	2H	5.41	6.01	6.54	7.13	8.67	5.06	5.67	6.20	6.78	8.32
	3H	7.26	7.77	8.40	8.91	10.46	6.87	7.37	8.01	8.51	10.07
	4H	7.97	8.44	9.11	9.56	11.14	7.57	8.03	8.71	9.16	10.73
	6H	8.48	8.88	9.63	10.03	11.59	8.07	8.47	9.22	9.62	11.18
	8H	8.63	9.00	9.77	10.14	11.72	8.21	8.58	9.36	9.73	11.31
	12H	8.69	9.03	9.86	10.18	11.77	8.27	8.61	9.43	9.76	11.35
8H	4H	8.16	8.53	9.30	9.67	11.25	7.80	8.17	8.94	9.31	10.89
	6H	8.78	9.09	9.95	10.27	11.85	8.42	8.73	9.59	9.91	11.49
	8H	9.00	9.27	10.18	10.43	12.03	8.63	8.90	9.81	10.06	11.66
	12H	9.13	9.36	10.31	10.52	12.16	8.74	8.98	9.92	10.14	11.77
12H	4H	8.14	8.47	9.30	9.62	11.21	7.78	8.12	8.95	9.27	10.86
	6H	8.81	9.08	9.98	10.24	11.84	8.46	8.73	9.63	9.89	11.49
	8H	9.05	9.28	10.22	10.44	12.08	8.69	8.93	9.87	10.08	11.72

END OF REPORT